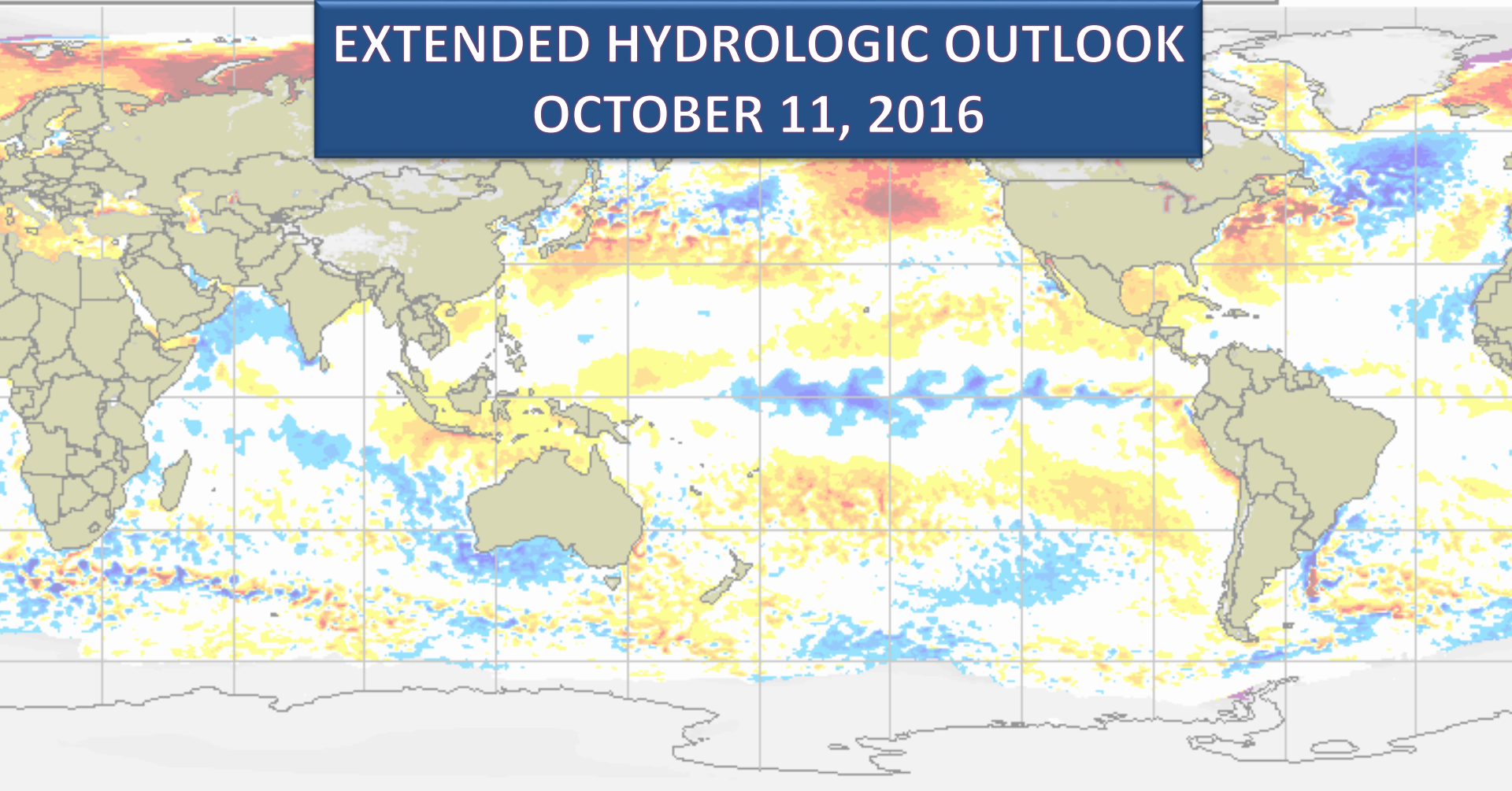


Global sea surface anomaly and snow cover
1 Oct 2016

Anomalie de la température de la mer et épaisseur de la neige
11 Oct 2016

EXTENDED HYDROLOGIC OUTLOOK OCTOBER 11, 2016



Sea surface temperature anomaly / Anomalie de la température de la mer (°C)



Snow depth / Épaisseur de la neige (cm)



Uncovered sea ice
Glace marine à découvrir
Climatologie 1995-2009 Climatologie



CMC Environnement Canada
CMC Environment Canada

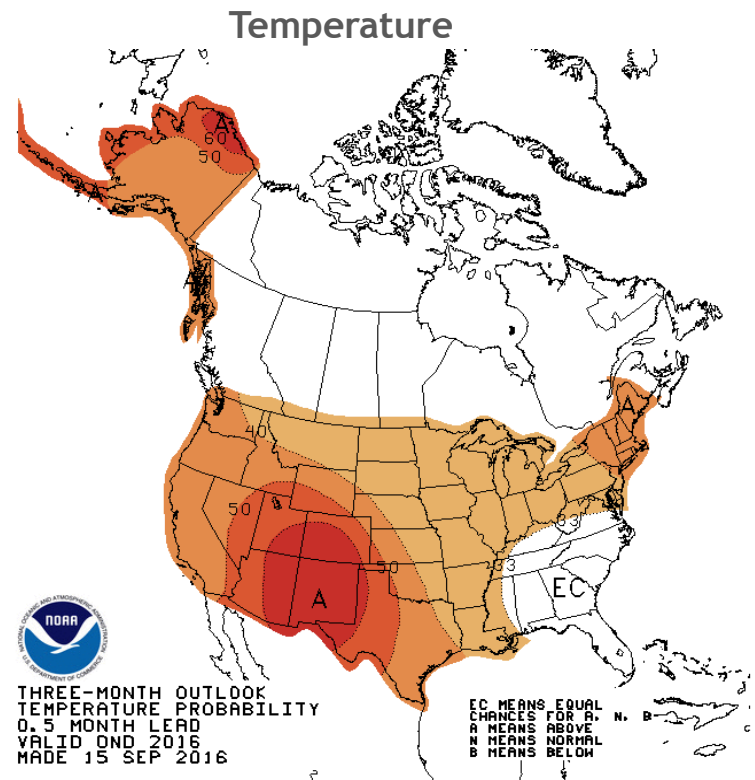
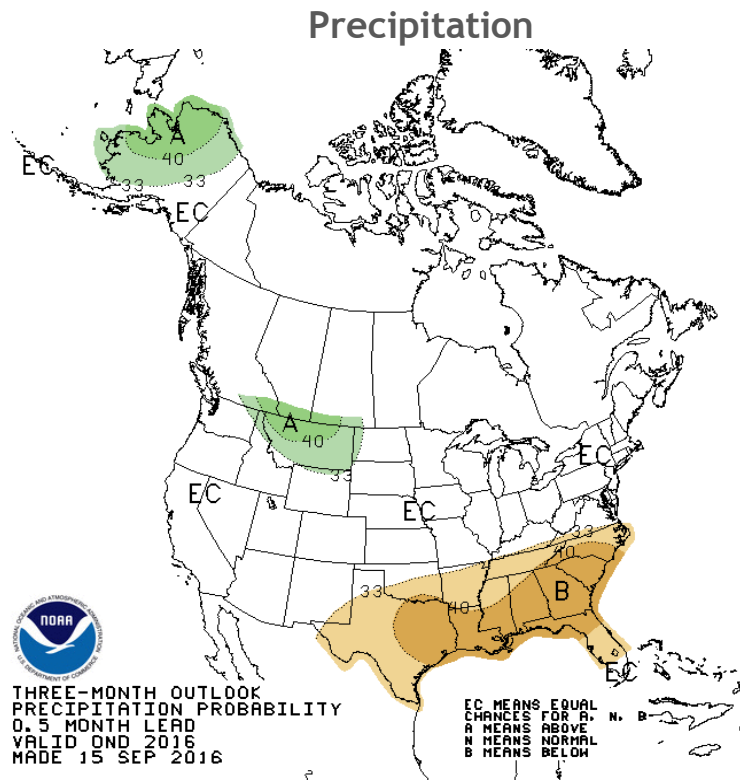
Summary

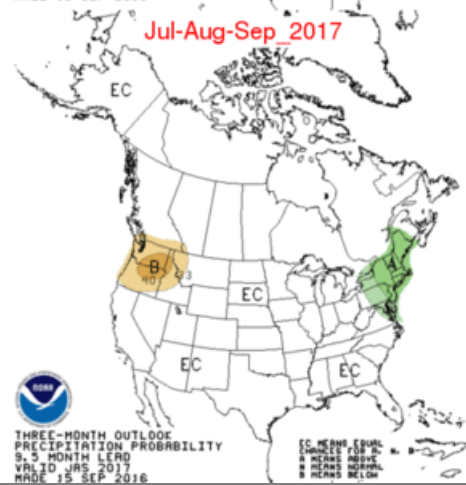
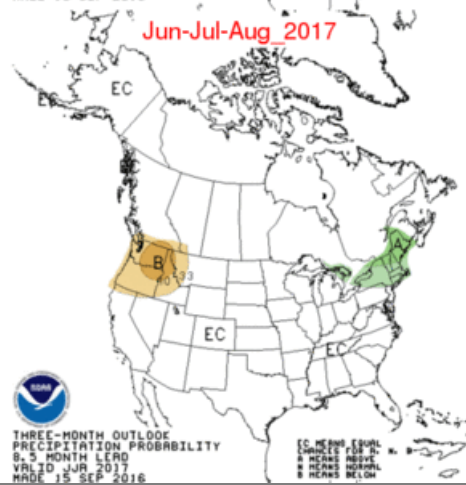
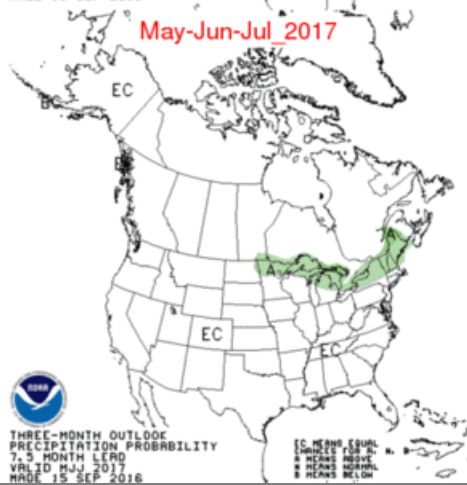
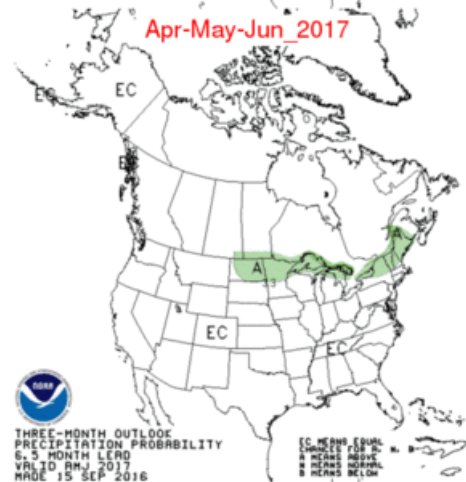
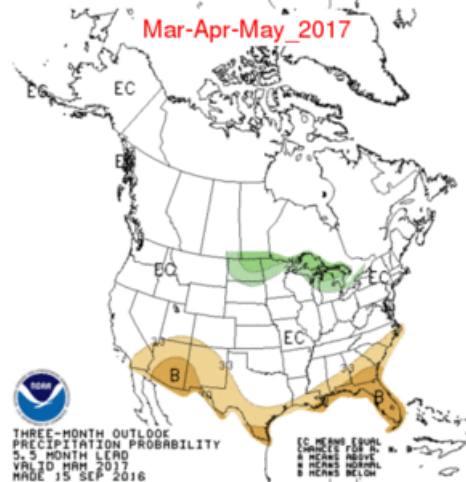
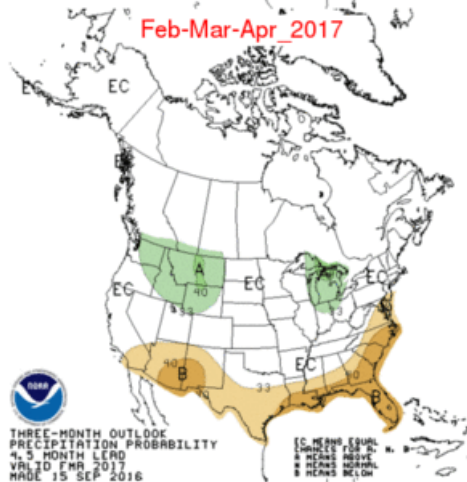
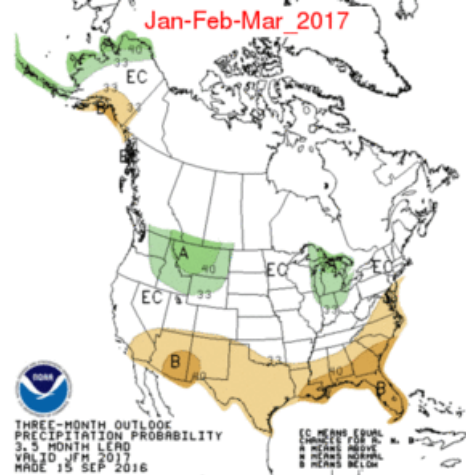
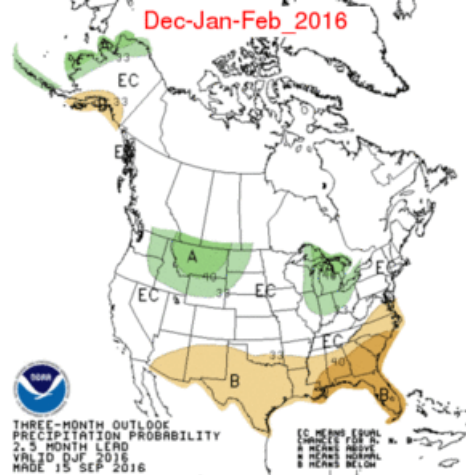
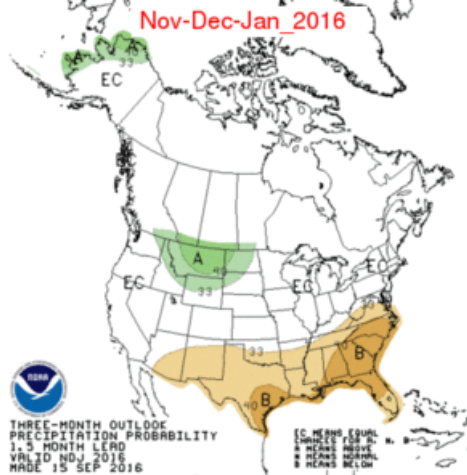
- The Climate Prediction Center (CPC) is forecasting slightly below normal for the Kissimmee and Lake Okeechobee areas and equal chances of normal, above-normal or below-normal rainfall for areas south of Lake Okeechobee during October through December.
- ENSO-neutral conditions are present. ENSO-neutral conditions are slightly favored (between 55-60%) during the fall and winter 2016-17.
- The strong positive phase of the Pacific Decadal Oscillation increases the potential for a greater number of El Niño events for multi-year periods.
- Monitoring Atlantic Multidecadal Oscillation (AMO) index for switch to negative (cold) phase, this has the potential to contribute to a drier-than-normal 2016 wet season. A good indicator of switch to the AMO cold phase will be an average to below-average hurricane season.

U. S. Seasonal Outlooks

October - December 2016

The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when appropriate, ENSO.

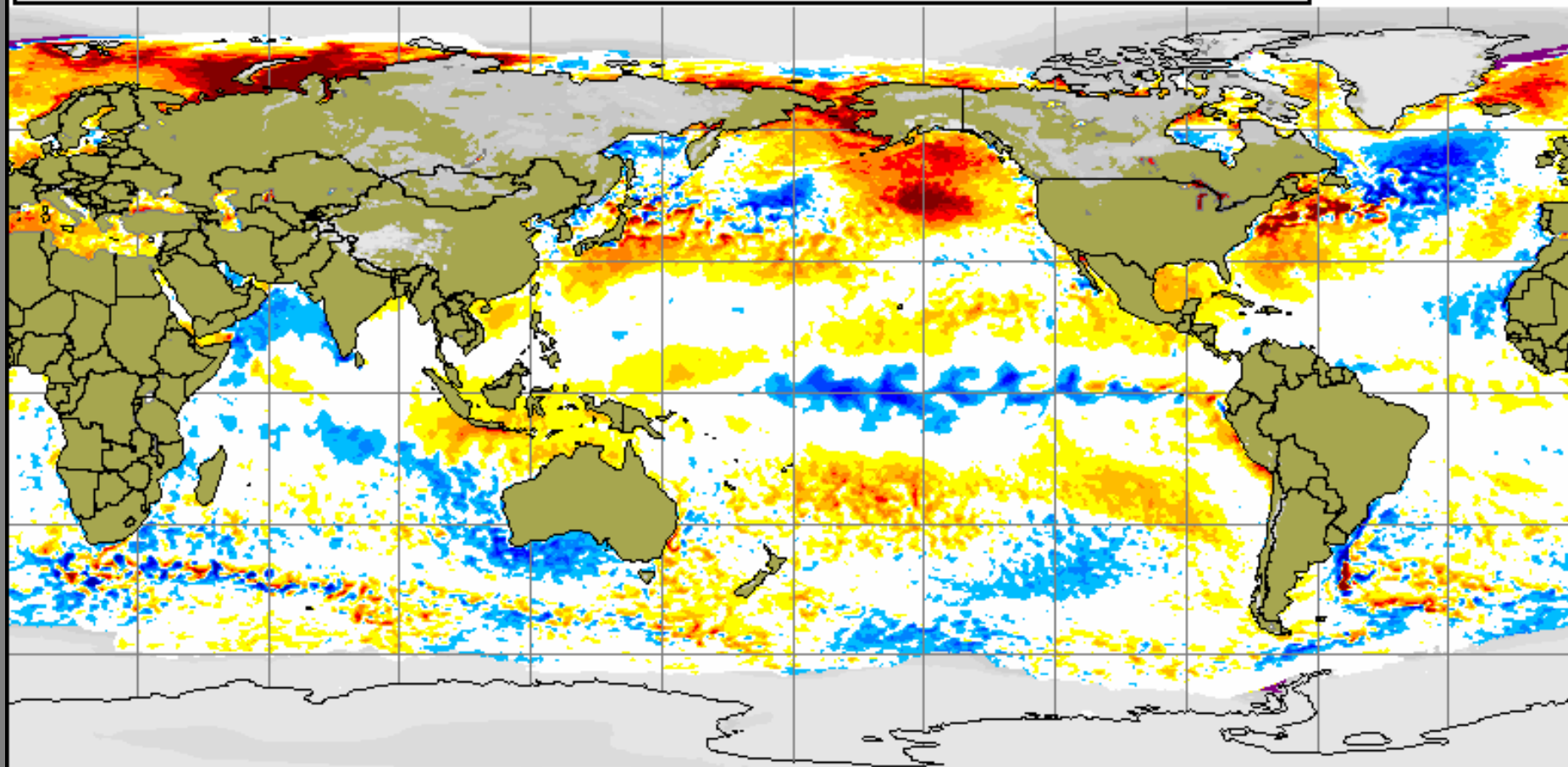




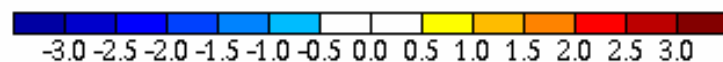
Current Global Sea Surface Temperature Anomalies

Global sea surface anomaly and snow cover
11 Oct 2016

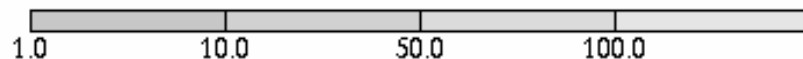
Anomalie de la température de la mer et épaisseur de la neige
11 Oct 2016



Sea surface temperature anomaly / Anomalie de la température de la mer (°C)



Snow depth / Épaisseur de la neige (cm)



Uncovered sea ice

Glace marine à découvert

Climatologie 1995-2009 Climatology

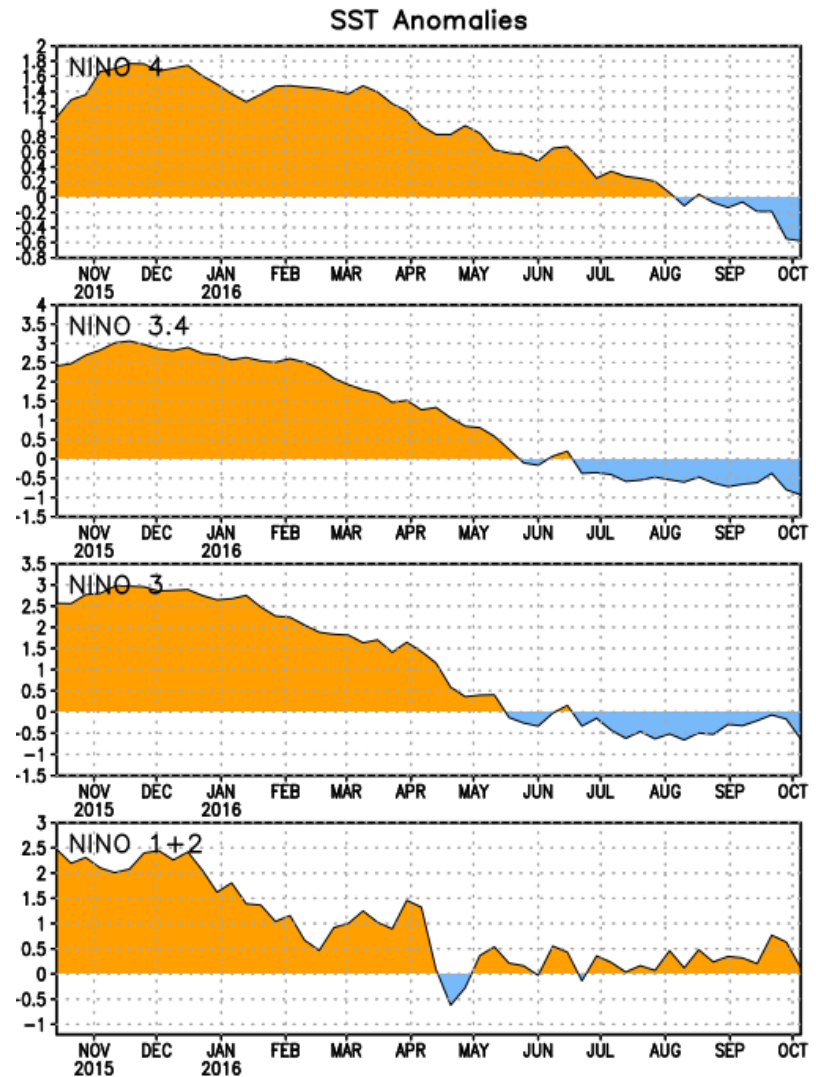
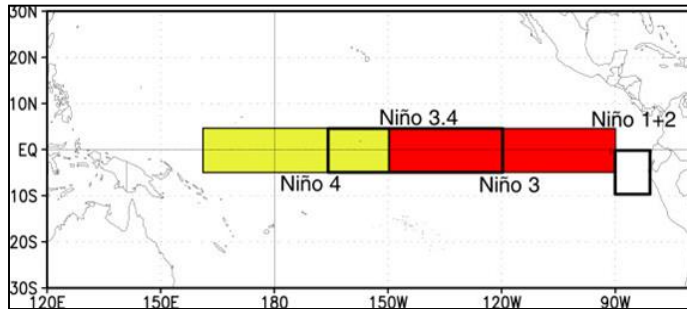


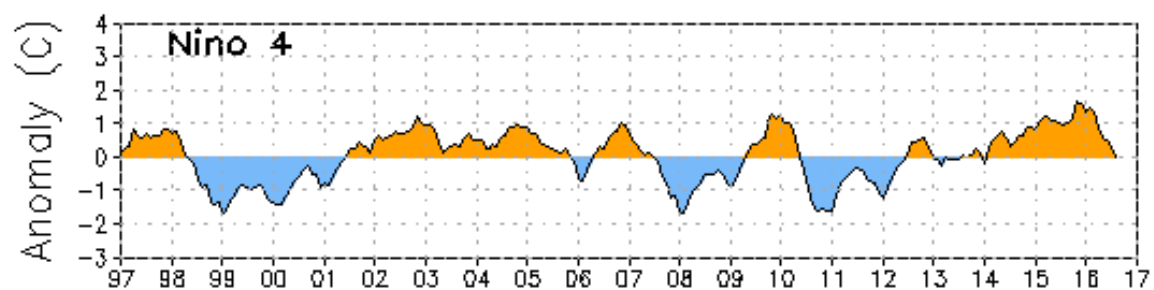
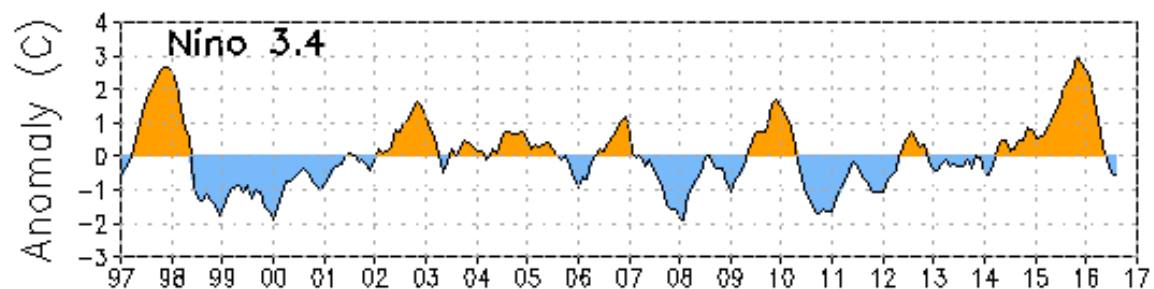
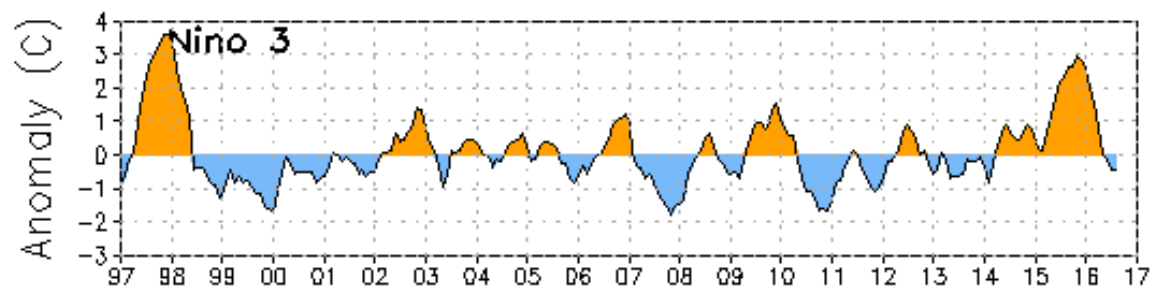
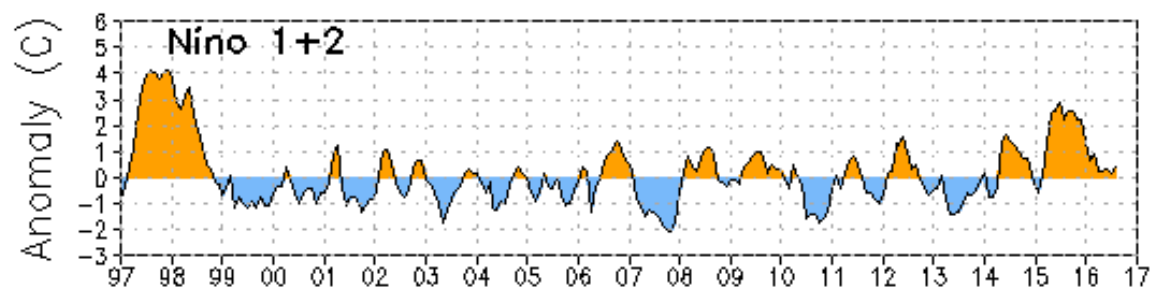
CMC Environnement Canada
CMC Environnement Canada

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	-0.6°C
Niño 3.4	-0.9°C
Niño 3	-0.6°C
Niño 1+2	0.1°C





Data updated through August 2016

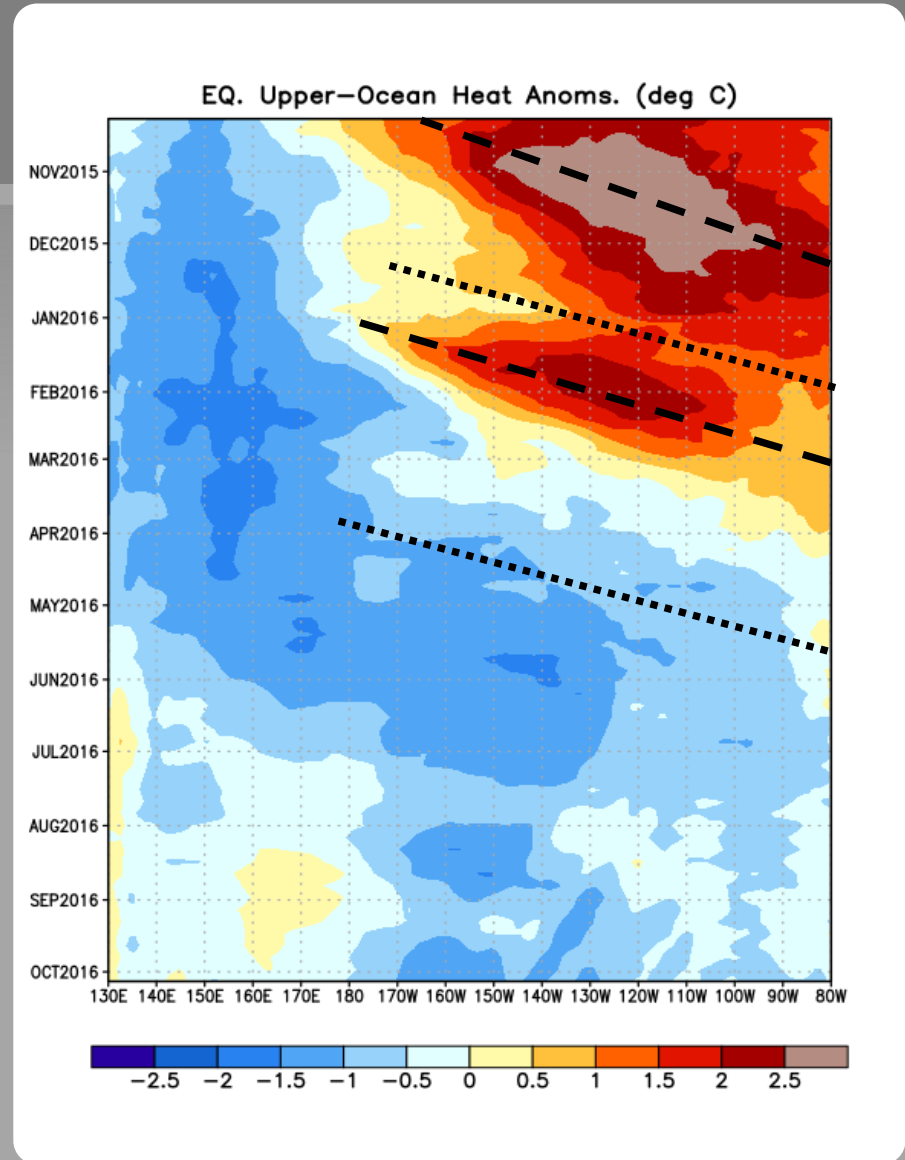
Weekly Heat Content Evolution in the Equatorial Pacific

Downwelling phases of equatorial oceanic Kelvin waves were observed October-November 2015 and January-February 2016.

Since the passage of an upwelling equatorial oceanic Kelvin wave in March 2016, below-average subsurface temperatures have continued across much of the equatorial Pacific.

Since mid- September 2016, below-average subsurface temperatures have strengthened near and east of the International Date Line.

Equatorial oceanic Kelvin waves have alternating warm and cold phases. The warm phase is indicated by dashed lines. Downwelling and warming occur in the leading portion of a Kelvin wave, and up-welling and cooling occur in the trailing portion.

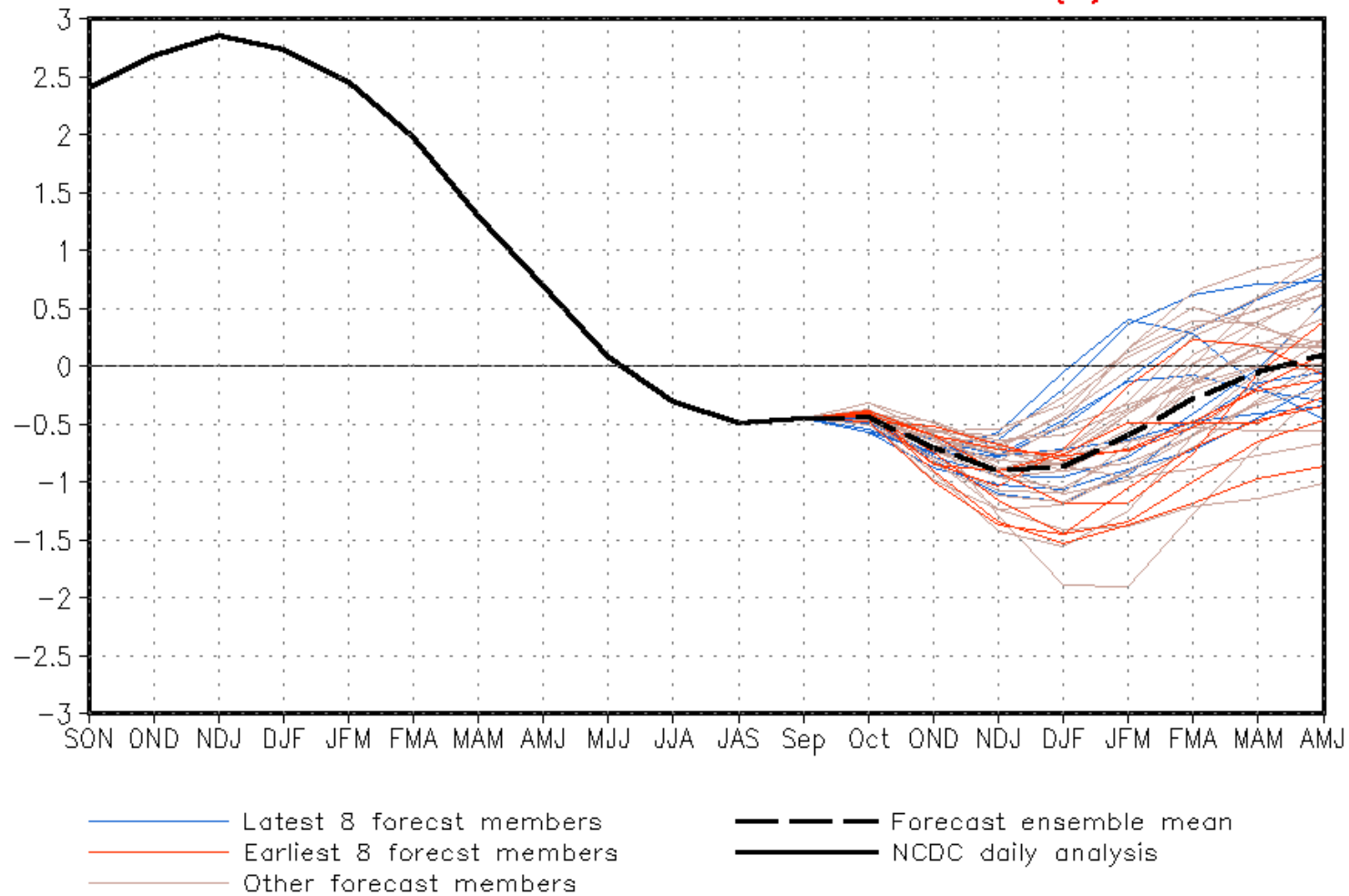




NWS/NCEP/CPC

Last update: Tue Oct 11 2016
Initial conditions: 30Sep2016-9Oct2016

CFSv2 forecast Nino3.4 SST anomalies (K)



IRI/CPC Pacific Niño

3.4 SST Model Outlook

Most multi-model averages indicate borderline ENSO-neutral/ La Niña conditions during the Northern Hemisphere fall and winter 2016-17.

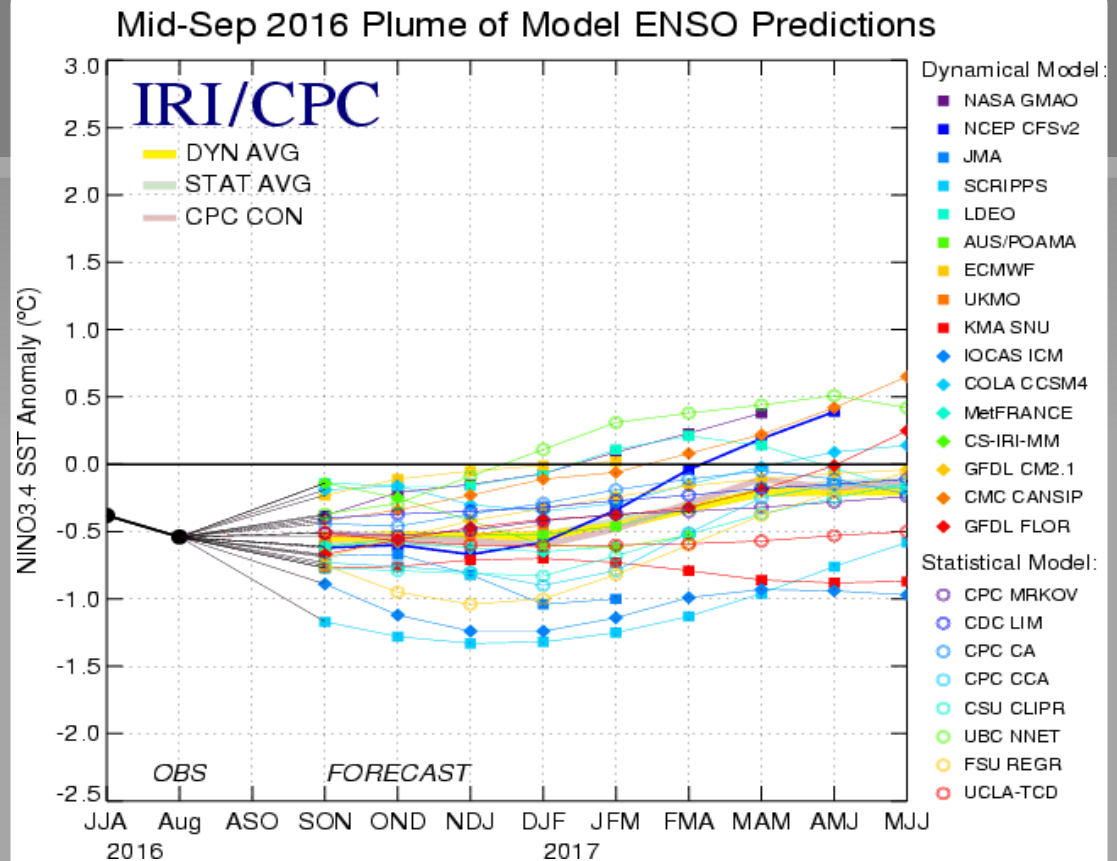


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 13 September 2016).

Historical El Niño and La Niña Episodes Based on the ONI computed using ERSST.v4

Recent Pacific warm (red) and cold (blue) periods based on a threshold of ± 0.5 °C for the Oceanic Nino Index (ONI) [3 month running mean of ERSST.v4 SST anomalies in the Nino 3.4 region (5N-5S, 120-170W)]. For historical purposes, periods of below and above normal SSTs are colored in blue and red when the threshold is met for a minimum of 5 consecutive over-lapping seasons.

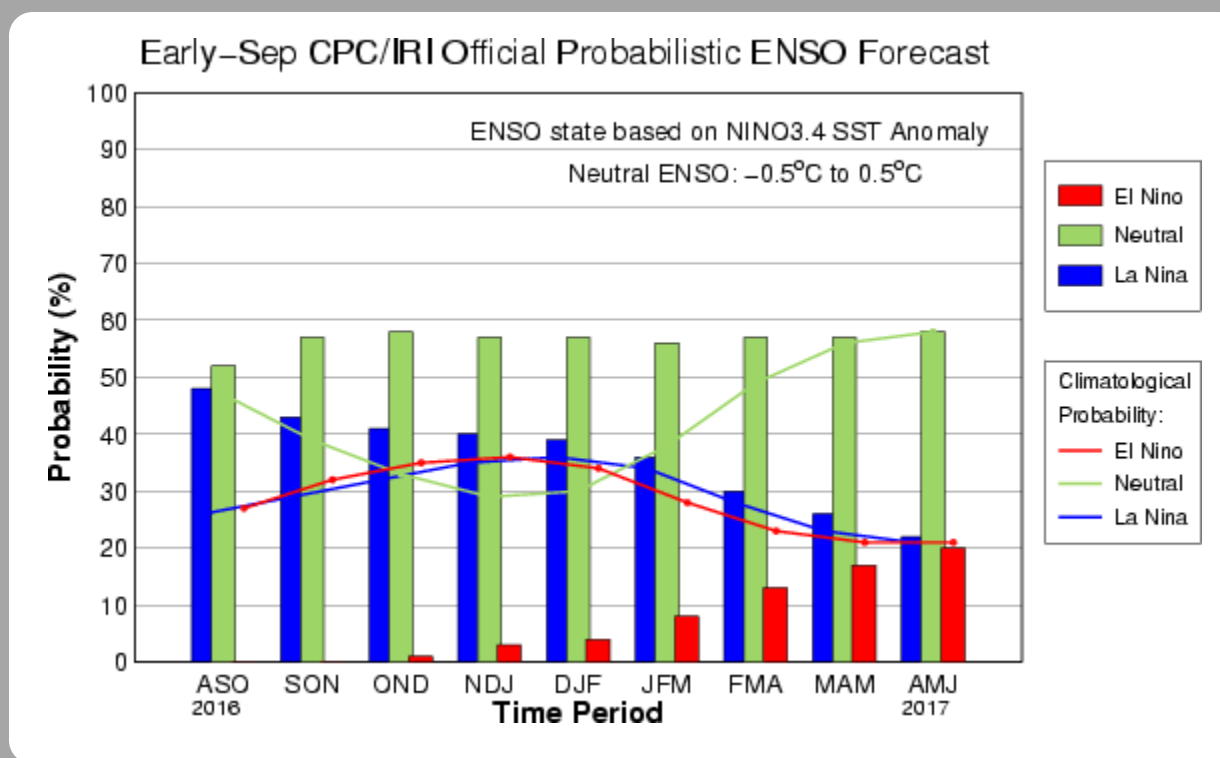
The ONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found [here](#).

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2004	0.3	0.3	0.2	0.1	0.2	0.3	0.5	0.6	0.7	0.7	0.6	0.7
2005	0.7	0.6	0.5	0.5	0.3	0.2	0.0	-0.1	0.0	-0.2	-0.5	-0.7
2006	-0.7	-0.6	-0.4	-0.2	0.0	0.0	0.1	0.3	0.5	0.7	0.9	0.9
2007	0.7	0.4	0.1	-0.1	-0.2	-0.3	-0.4	-0.6	-0.9	-1.1	-1.3	-1.3
2008	-1.4	-1.3	-1.1	-0.9	-0.7	-0.5	-0.4	-0.3	-0.3	-0.4	-0.6	-0.7
2009	-0.7	-0.6	-0.4	-0.1	0.2	0.4	0.5	0.5	0.6	0.9	1.1	1.3
2010	1.3	1.2	0.9	0.5	0.0	-0.4	-0.9	-1.2	-1.4	-1.5	-1.4	-1.4
2011	-1.3	-1.0	-0.7	-0.5	-0.4	-0.3	-0.3	-0.6	-0.8	-0.9	-1.0	-0.9
2012	-0.7	-0.5	-0.4	-0.4	-0.3	-0.1	0.1	0.3	0.3	0.3	0.1	-0.2
2013	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.3	-0.3	-0.3
2014	-0.5	-0.5	-0.4	-0.2	-0.1	0.0	-0.1	0.0	0.1	0.4	0.5	0.6
2015	0.6	0.5	0.6	0.7	0.8	1.0	1.2	1.4	1.7	2.0	2.2	2.3
2016	2.2	2.0	1.6	1.1	0.6	0.1	-0.3	-0.5				

CPC/IRI Probabilistic ENSO Outlook

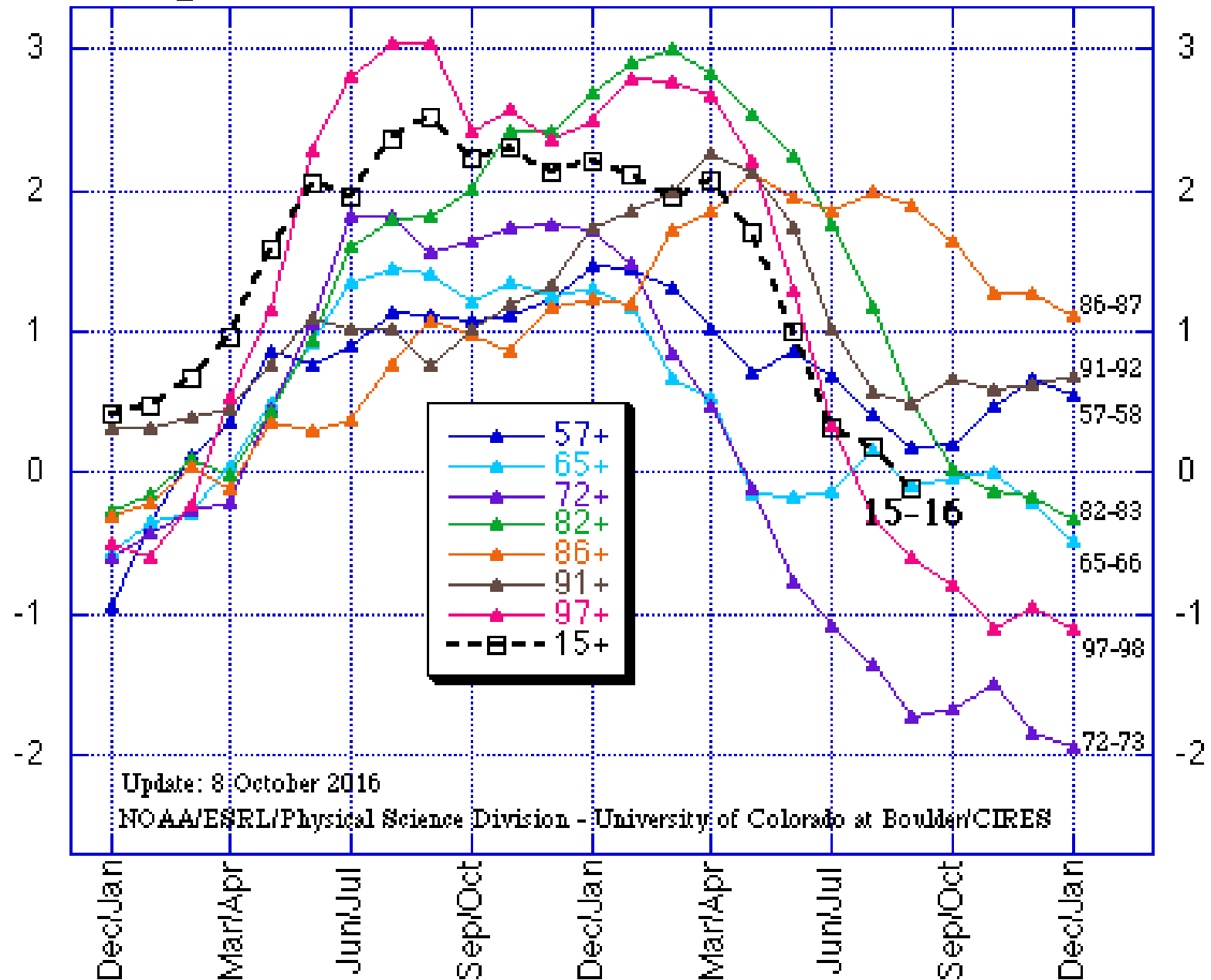
Updated: 8 September 2016

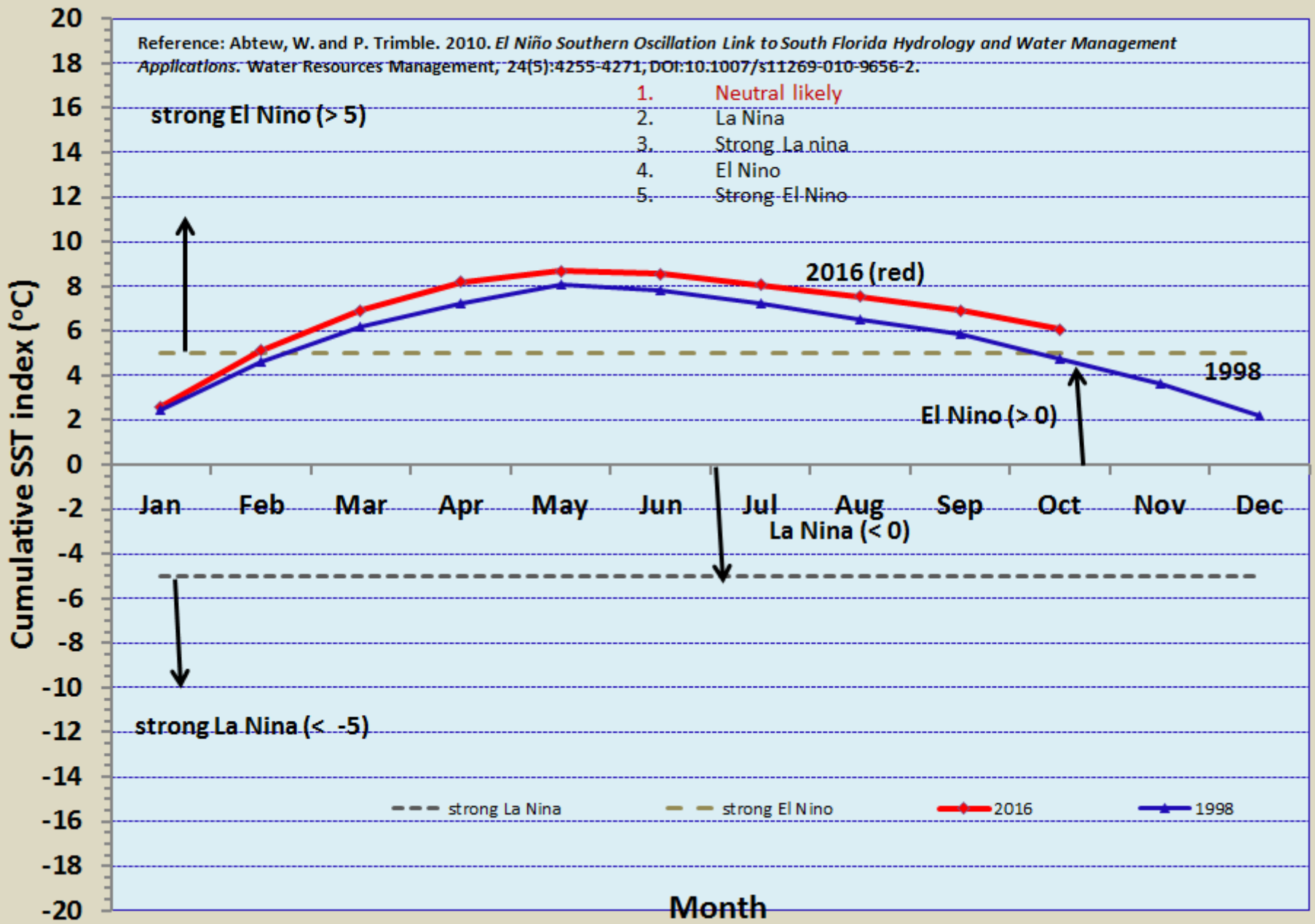
ENSO-neutral is slightly favored (55-60% chance) through the Northern Hemisphere fall and winter 2016-17.



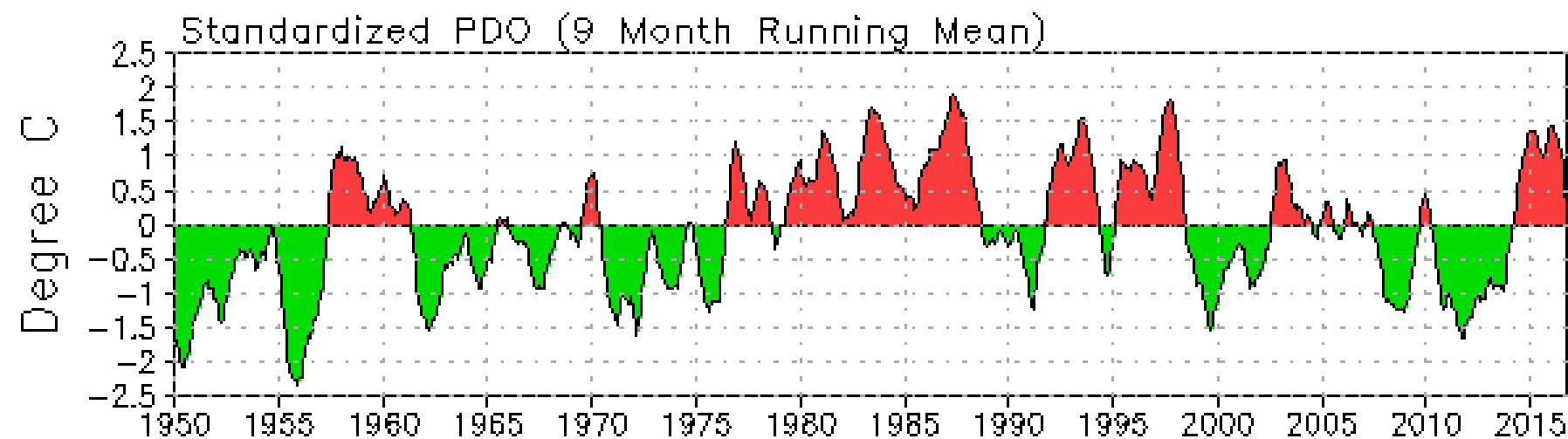
Multivariate ENSO Index (MEI) for the seven strongest El Niño events since 1950 vs. 2015-16

Standardized Departure

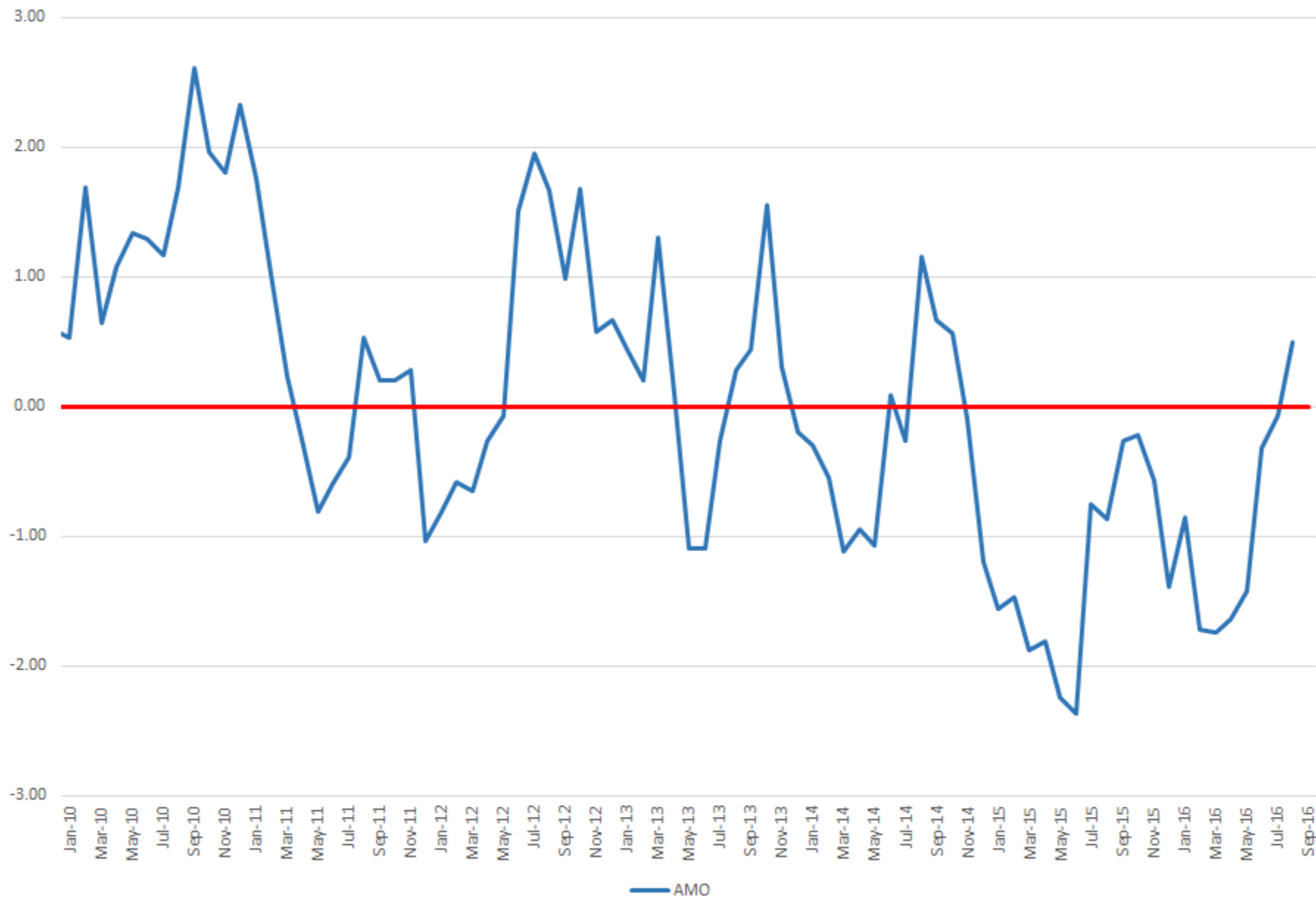




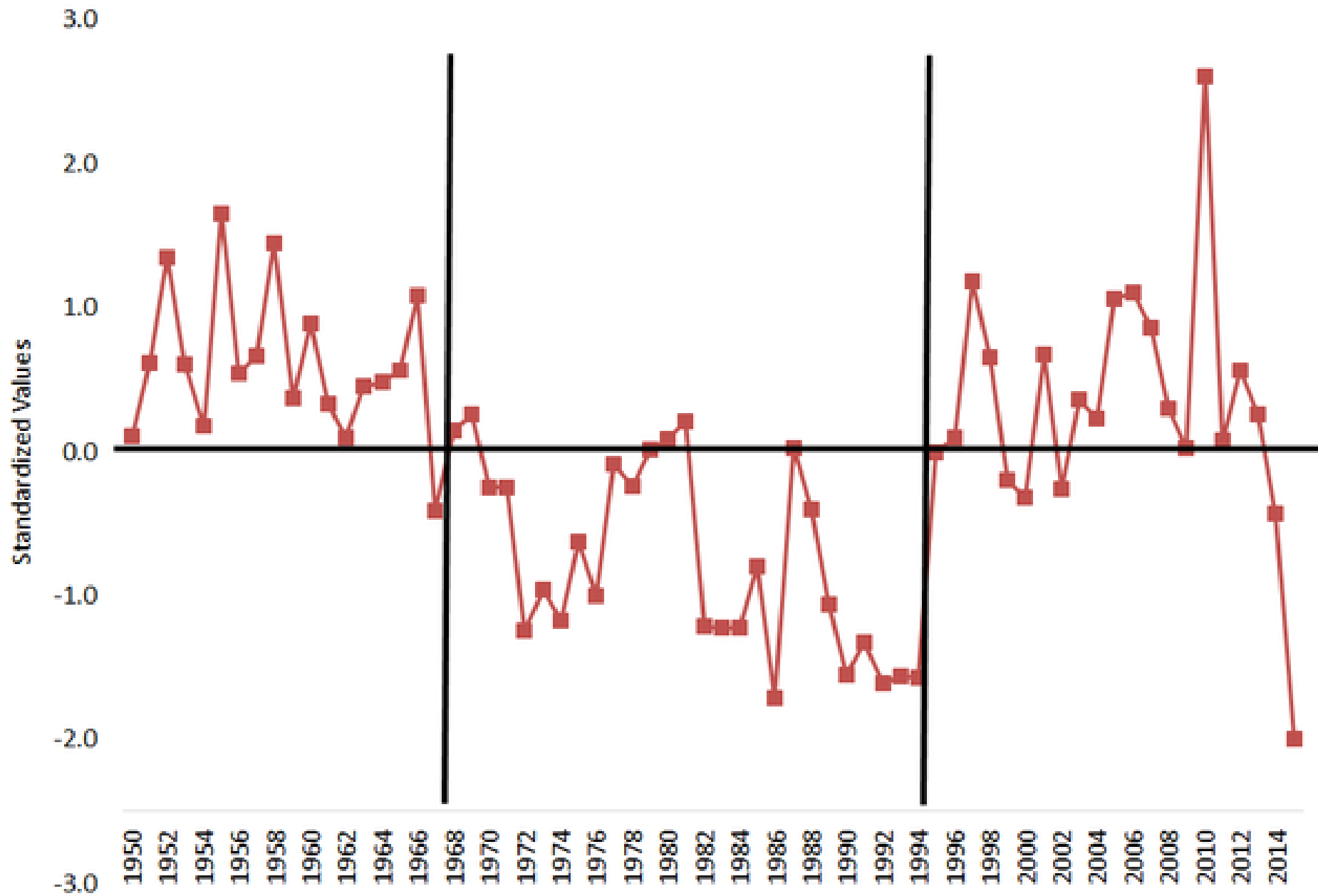
Source: Wossenu Abtew (SFWMD)



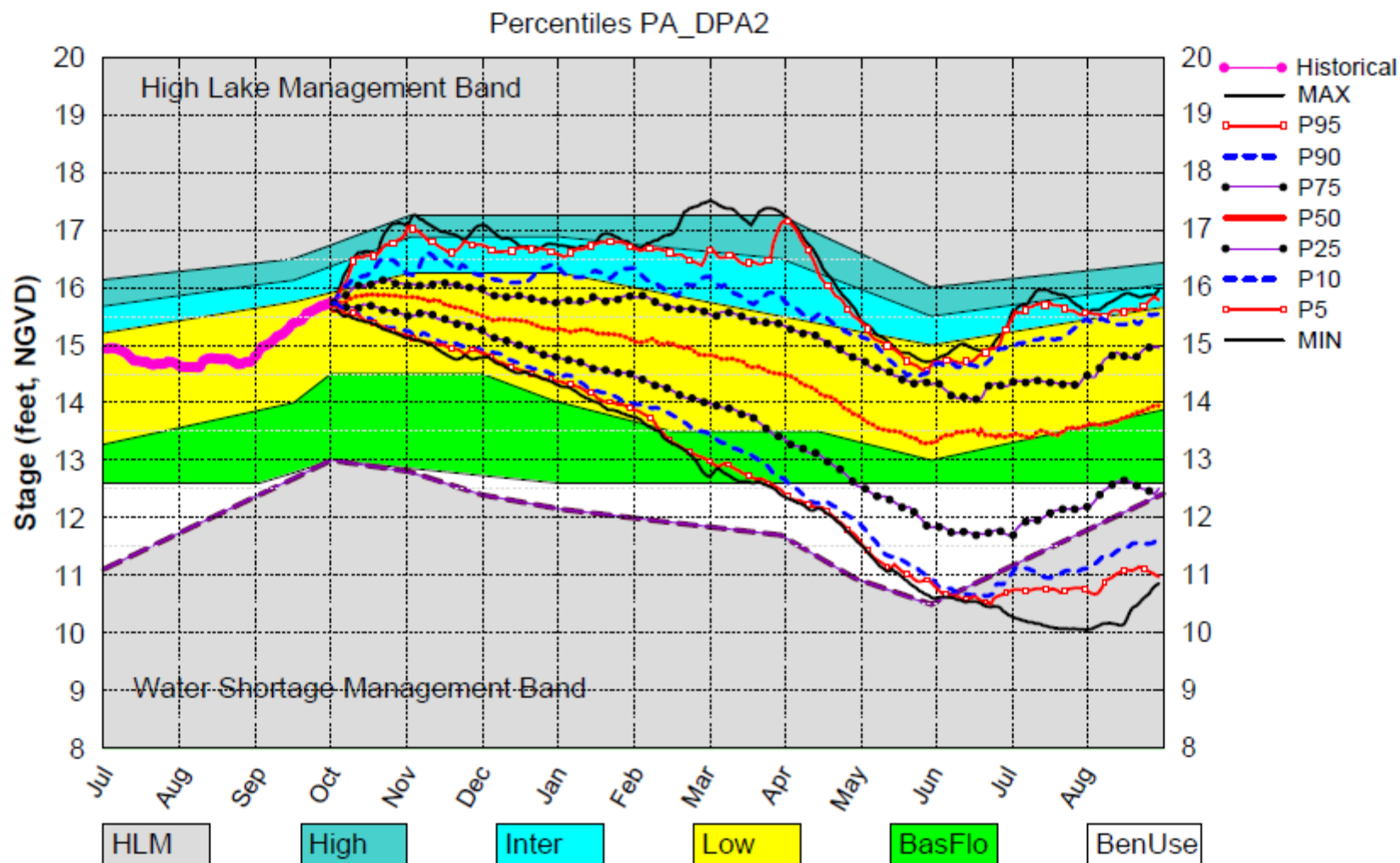
Klotzbach/Gray Atlantic Multidecadal Oscillation Index (CSU)



Annual AMO Index (1950-2015) - Calculated from Klotzbach and Gray (2008)



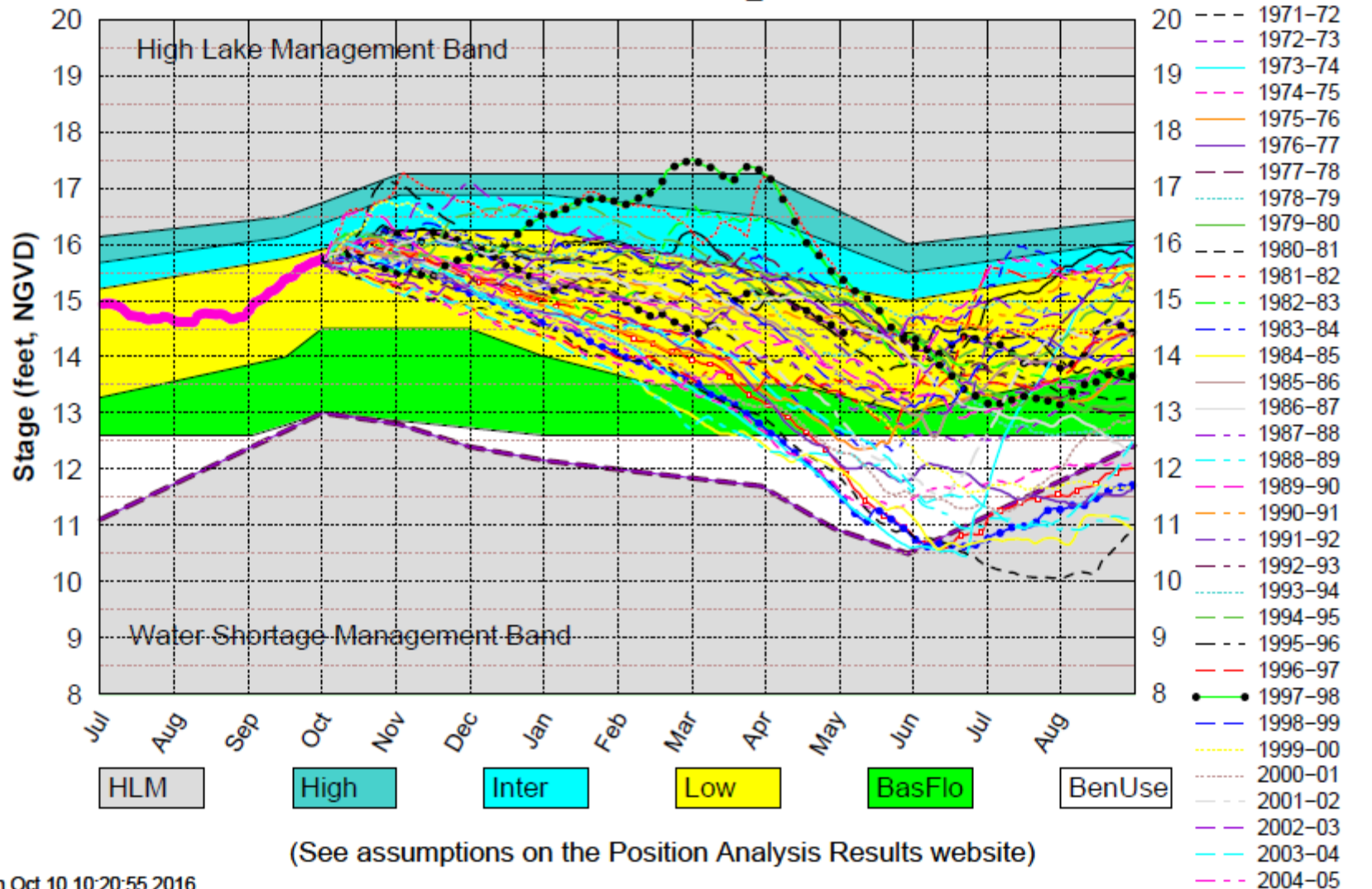
Lake Okeechobee SFWMM October 2016 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

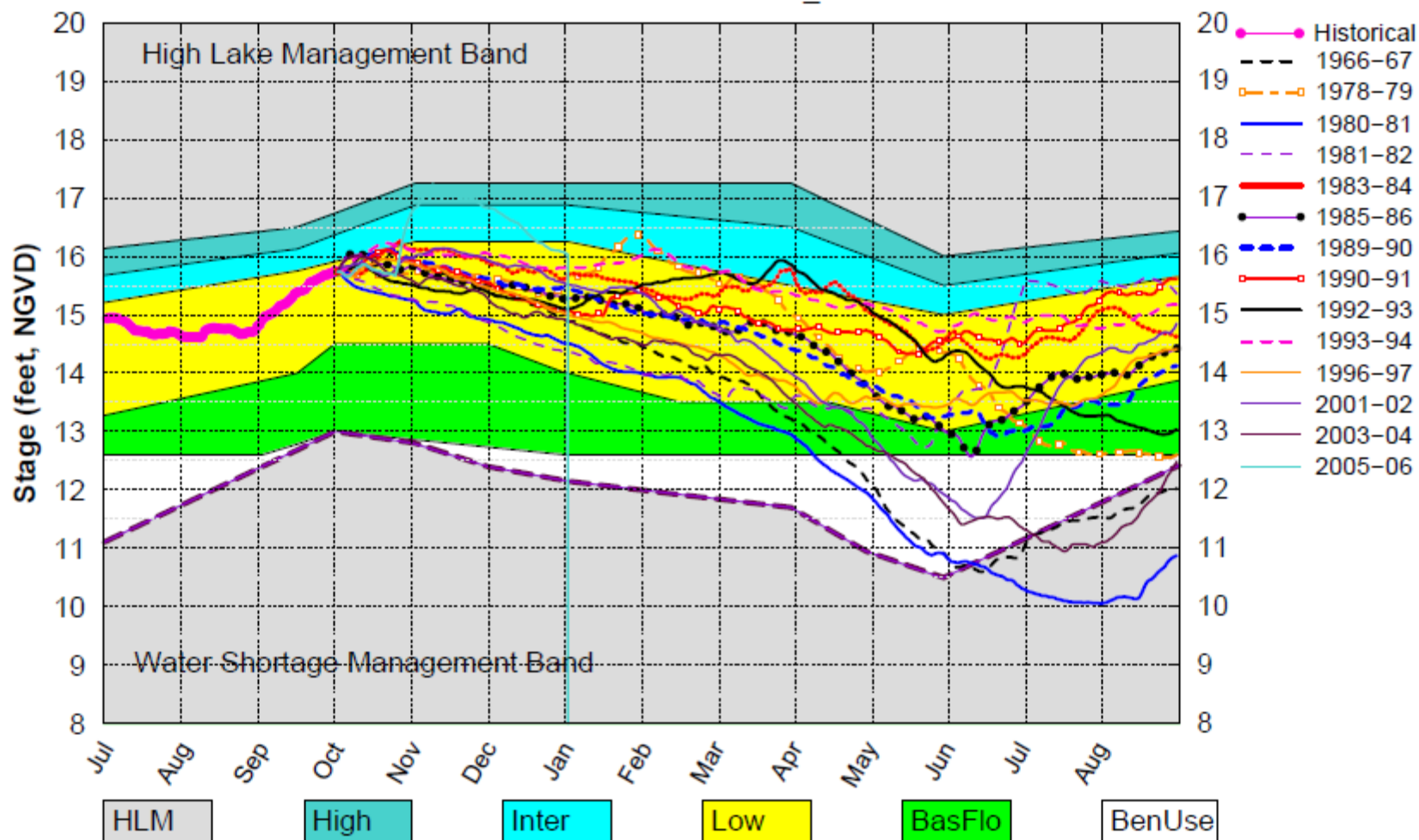
Lake Okeechobee SFWMM October 2016 Dynamic Position Analysis

All Simulated Years Plot PA_DPA2



Lake Okeechobee SFWMM October 2016 Dynamic Position Analysis

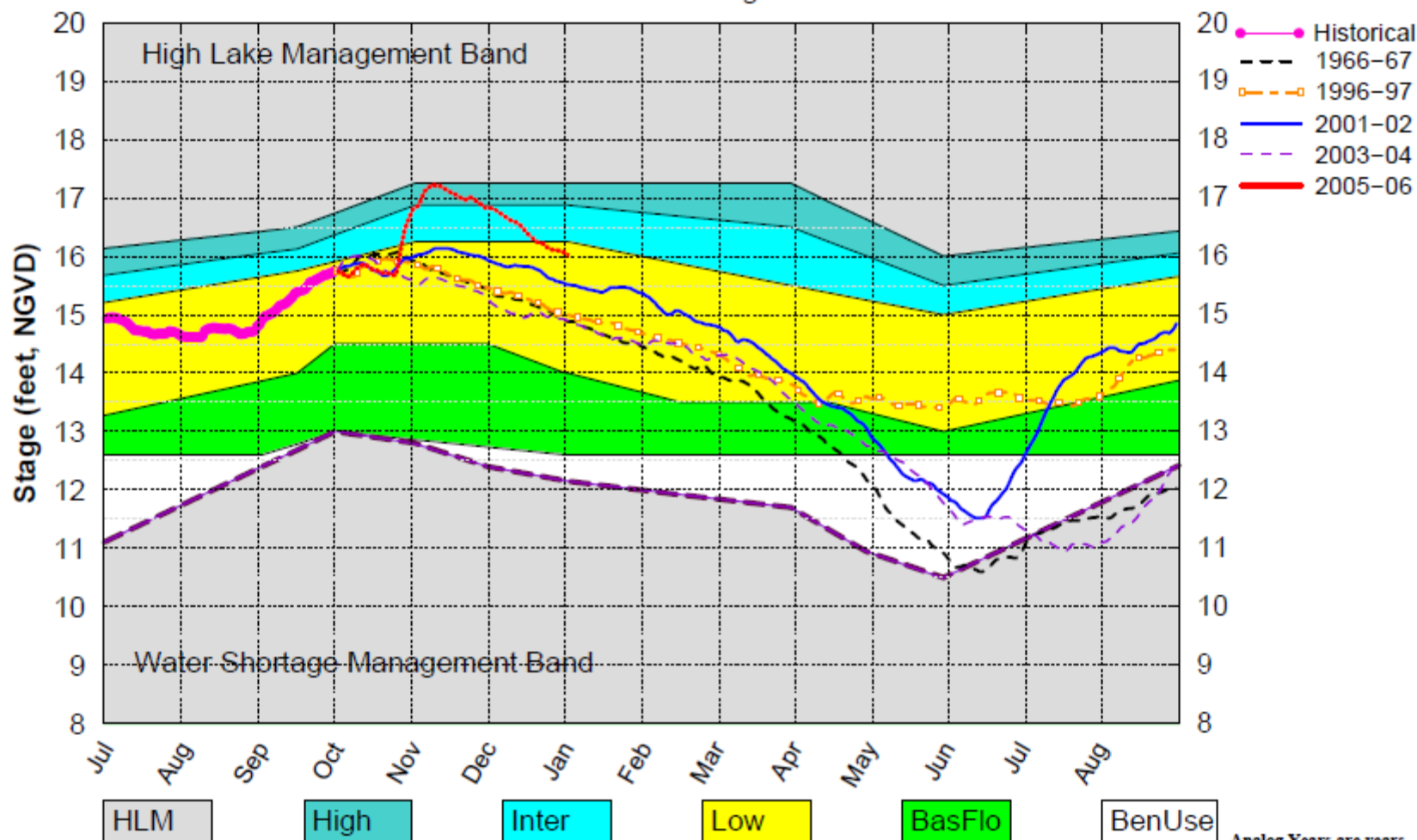
All ENSO Neutral Years Plot PA_DPA2



(See assumptions on the Position Analysis Results website)

Lake Okeechobee SFWMM October 2016 Dynamic Position Analysis

AMO Warm / ENSO Neutral Analog Years Plot DPA2



Analog Years are years

(See assumptions on the Position Analysis Results website)

with similar climatological conditions
to the current year.